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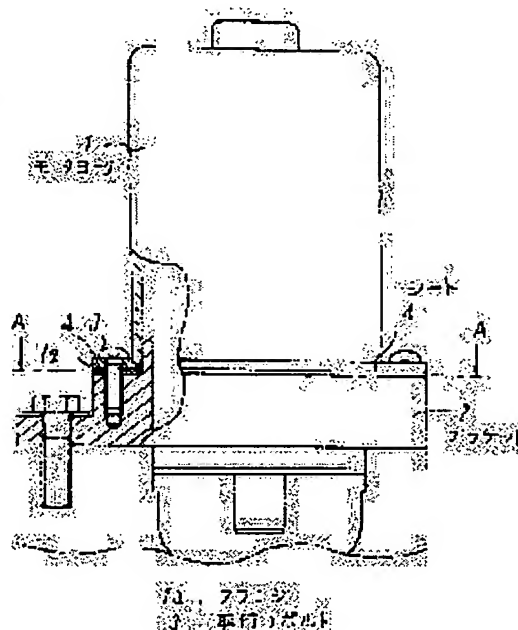
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(54) APPARATUS FOR REDUCING VIBRATION OF DYNAMO-ELECTRIC MACHINE

(57)Abstract:

PROBLEM TO BE SOLVED: To control transfer of vibration between a motor yoke and a bracket mounting portion in a dynamo-electric machine.

SOLUTION: A sheet 4 formed of a foamed rubber, rubber or elastomer as a viscous and elastic material is reterposed to the flange surface of the motor yoke 1 and over the entire part of the mounting surface of the bracket 2, provided to counterpose the flange surface.



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CLAIMS

[Claim(s)]

[Claim 1] Oscillating reduction equipment of the rotation electrical machinery characterized by making the sheet which becomes by the foamed rubber, the rubber, or the elastomer which is viscoelasticity material throughout the flange face of a motor yoke, and the anchoring side of this and the bracket which counters in the rotation electrical machinery of the structure where the flange face of a motor yoke is fixed to the anchoring side of a bracket intervene.

[Claim 2] Oscillating reduction equipment of the rotation motor characterized by making the sheet which prepares a level difference from which it becomes metallic contact near the bolting attachment bearing surface at least in the anchoring side of a motor yoke or a bracket in the rotation electrical machinery of the structure where the flange face of a motor yoke is fixed to the anchoring side of a bracket, and becomes about other parts by the foamed rubber, the rubber, or the elastomer which is viscoelasticity material intervene.

[Claim 3] Oscillating reduction equipment of the rotation electrical machinery characterized by having established a slot where it becomes metallic contact near the bolting attachment bearing surface at least in the anchoring side of a motor yoke or a bracket in the rotation electrical machinery of the structure where the flange face of a motor yoke is fixed to the anchoring side of a bracket, and making the liquefied gasket which is viscoelasticity material placed between these slots.

[Claim 4] Oscillating reduction equipment of the rotation motor according to claim 1 characterized by having the washer which used a foamed rubber, rubber, or the viscoelasticity material of an elastomer between the motor yoke anchoring bolt and the motor yoke.

[Claim 5] Oscillating reduction equipment of the rotation electrical machinery according to claim 1 or 4 characterized by equipping the motor yoke attachment inlaw section of a bracket with an O ring.

[Claim 6] Oscillating reduction equipment of the rotation electrical machinery according to claim 1 or 4 characterized by giving the resin for locking to the screw section of a motor yoke anchoring bolt.

[Claim 7] A claim 1, a sheet given in two, and a washer according to claim 4 are oscillating reduction equipment of the rotation electrical machinery characterized by being the structure which pasted up a foamed rubber, rubber, or the viscoelasticity material of an elastomer on both sides or one side of a metal plate.

[Claim 8] A claim 1, a sheet given in two, and a washer according to claim 4 are oscillating reduction equipment of the rotation electrical machinery characterized by being the multilayer structure of a metal plate, and a foamed rubber, rubber or the viscoelasticity material of an elastomer.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] This invention relates to the oscillating reduction equipment for suppressing the propagation of vibration in the attachment section of the bracket which damps vibration of the motor yoke by electromagnetic force, and counters with the flange face of a motor yoke, and this in the rotation electrical machinery of the structure where the flange face of a motor yoke is fixed to the anchoring side of a bracket.

[0002]

[Description of the Prior Art] An example (JP,7-21085,B) of the structure of the motor used conventionally is shown in drawing 20. As for a motor yoke and 22, in drawing 20, 21 is [a bracket and 23] motor yoke anchoring bolts as a portion with especially the invention in this application and relevance. With the rotation electrical machinery constituted as mentioned above, since the motor yoke 21 and the bracket 22 were directly concluded with the motor yoke installation bolt 23, by the torque change accompanying rotation of a motor, and change of electromagnetic force, it was easy to generate sound and vibration from the motor yoke 21, and it transmitted and resonated from the motor yoke 21 to the bracket 22 side, and had the trouble of being easy to generate sound and vibration.

[0003]

[Problem(s) to be Solved by the Invention] This invention is made in order to solve the above-mentioned trouble, and it uses the oscillating reduction equipment in the anchoring section of a motor yoke and a bracket as an offer plug.

[0004]

[Means for Solving the Problem] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 1 of this invention makes the sheet which becomes by the foamed rubber, the rubber, or the elastomer which is viscoelasticity material throughout the flange face of a motor yoke, and the anchoring side of this and the bracket which counters intervene in the rotation electrical machinery of the structure where the flange face of a motor yoke is fixed to the anchoring side of a bracket.

[0005] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 2 of this invention prepares a level difference from which it becomes metallic contact near the bolting attachment bearing surface at least in the anchoring side of a motor yoke or a bracket, and makes the sheet which becomes about other parts by the foamed rubber, the rubber, or the elastomer which is viscoelasticity material intervene.

[0006] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 3 of this invention establishes a slot where it becomes metallic contact near the bolting attachment bearing surface at least in the anchoring side of a motor yoke or a bracket, and makes the liquefied gasket which is viscoelasticity material placed between these slots.

[0007] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 4 of this invention is equipped with the washer which used a foamed rubber, rubber, or the viscoelasticity material of an elastomer between the motor yoke anchoring bolt and the motor yoke.

[0008] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 5 of this invention equips the motor yoke attachment inlaw section of a bracket with an O ring.

[0009] The oscillating reduction equipment of the rotation electrical machinery concerning the claim 6 of this invention gives the resin for locking to the screw section of a motor yoke anchoring bolt.

[0010] As for the oscillating reduction equipment of the rotation electrical machinery concerning the claim 7 of this invention, a claim 1, a sheet given in two, and a washer according to claim 4 paste up a foamed rubber, rubber, or the viscoelasticity material of an elastomer on both sides or one side of a metal plate.

[0011] A claim 1, a sheet given in two, and the washer according to claim 4 of the oscillating reduction equipment of the rotation electrical machinery concerning the claim 8 of this invention are the multilayer structure of a metal plate, a

foamed rubber and rubber, or the viscoelasticity material of an elastomer.

[0012]

[Embodiments of the Invention] It is the cross section with which gestalt 1. drawing 1 of operation and drawing 2 show the gestalt 1 of implementation of this invention, drawing 1 meets the side elevation of a notch and drawing 2 meets the A-A line of drawing 1 in part. In drawing, as for a motor yoke and 2, 1 is [a bracket and 3] anchoring bolts, and 4 is a sheet which intervened over the whole region of the field of flange 1a of the above-mentioned motor yoke 1, and the anchoring side of a bracket 2 and which becomes by the foamed rubber, the rubber, or the elastomer which is viscoelasticity material. In addition, in 15 in drawing 2, the axis of rotation and 16 show a brush and 17 shows a pigtail. This operation gestalt 1 as mentioned above throughout the anchoring side of the flange face of the motor yoke 1, and a bracket 2 By fitting in through the sheet 4 which used a foamed rubber, rubber, or the viscoelasticity material of an elastomer, making it conclude with the motor yoke anchoring bolt 3, and carrying out like this The torque change accompanying rotation of a motor, and the in-plane vibration of the anchoring side of the motor yoke 1 generated by change of electromagnetic force It changes into heat energy by shear strain of the sheet 4 of a viscoelastic body, and the damping effect of reducing vibration of the motor yoke itself, and the vibrationproofing effect of reducing the oscillating transfer to a bracket 2 from the motor yoke 1 are done so.

[0013] It is the cross section with which gestalt 2. drawing 3 of operation and drawing 4 show the gestalt 2 of implementation of this invention, drawing 3 meets the side elevation of a notch and drawing 4 meets the B-B line of drawing 3 in part. Level difference 2b is prepared. this operation gestalt 2 -- the modification of the above-mentioned operation gestalt 1 -- it is -- namely, the anchoring side of a bracket 2 -- so that it may be made into heights 2a near the bolting attachment bearing surface at least It constitutes so that anchoring side heights 2a of this bracket 2 and the motor yoke 1 may serve as metallic contact, and it is made to make the sheet 4 which used a foamed rubber, rubber, or the viscoelasticity material of an elastomer between the motor yokes 1 intervene the anchoring **** side of a bracket 2. If it does in this way, the slack of the anchoring bolt 3 in the case of using it in the environment where degradation and contraction of a sheet 4 may take place can be prevented by making it into metallic contact near the bearing surface of a bolt.

[0014] It is the cross section with which gestalt 3. drawing 5 of operation and drawing 6 show the gestalt 3 of implementation of this invention, drawing 5 meets the side elevation of a notch and drawing 6 meets the C-C line of drawing 5 in part. In addition to the composition of the above-mentioned operation gestalt 2, this operation gestalt 3 arranges heights 2c. Namely, heights 2c is prepared in addition to heights 2a near the bolting attachment bearing surface, and it aims at preventing **** of a motor yoke. Moreover, in order to hold the damping effect, as for heights, it is good to constitute to the part which attached from parts other than the field pole, and gave the perpendicular to the field. In addition, on part composition, when difficult, it is not this limitation. Moreover, in drawing 6, although two heights 2c other than near the bolting attachment bearing surface is prepared, it is not limited to the number.

[0015] It is the cross section with which gestalt 4. drawing 7 of operation and drawing 8 show the gestalt 4 of implementation of this invention, drawing 7 meets the side elevation of a notch and drawing 8 meets the D-D line of drawing 7 in part. Although the gestalt 2 of the above-mentioned implementation showed what made it heights 2a near the bolting attachment bearing surface of the anchoring side of a bracket 2, with this operation gestalt, it leaves 1-near bolting attachment bearing surface b of the anchoring side of the motor yoke 1, and considers as heights, crevice 1c is prepared in the other portion, and a sheet 4 is inserted in this crevice 1c. Even if it does in this way, the same effect as the gestalt 2 of the above-mentioned implementation is done so.

[0016] It is the cross section with which gestalt 5. drawing 9 of operation and drawing 10 show the gestalt 5 of implementation of this invention, drawing 9 meets the side elevation of a notch and drawing 10 meets the E-E line of drawing 9 in part. Although the gestalt 3 of the above-mentioned implementation explained the case where Heights 2a and 2c were respectively formed in the other portion near the bolting attachment bearing surface of the anchoring side by the side of a bracket 2 With this operation gestalt, 1d of heights other than heights 1b prepared in the anchoring side of the motor yoke 1 is prepared like the gestalt 4 of the above-mentioned implementation, and a sheet 4 is inserted in crevice 1c between these. Even if it does in this way, the same effect as the gestalt 3 of the above-mentioned implementation is done so.

[0017] It is the cross section with which gestalt 6. drawing 11 of operation and drawing 12 show the gestalt 6 of implementation of this invention, drawing 11 meets the side elevation of a notch and drawing 12 meets the F-F line of drawing 11 in part. 2d of slots is established in the anchoring side of a bracket 2 so that it may become a convex side near the bolting attachment bearing surface at least, it constitutes so that the motor yoke 1 may serve as metallic contact the anchoring **** side of a bracket 2, and the liquefied gasket 5 which is viscoelasticity material is made to fill up with this operation gestalt between 2d of slots of the anchoring side of a bracket 2, and the motor yoke 1. Thus, while preventing the slack of the anchoring bolt in the case of using it in the environment where degradation and contraction

of a sheet may take place by making it into metallic contact near the bearing surface of a bolt, cost reduction can be planned by adopting the liquefied gasket 5.

[0018] It is the cross section with which gestalt 7. drawing 13 of operation and drawing 14 show the gestalt 7 of implementation of this invention, drawing 13 meets the side elevation of a notch and drawing 14 meets the G-G line of drawing 13 in part. Although the thing which 2d of slots is established [thing] in the anchoring side of a bracket 2, and makes this slot fill up the liquefied gasket 5 with the above-mentioned operation gestalt 6 into it was shown, prepare slot 1e in the anchoring side of the motor yoke 1 instead of a bracket 2 side, make a liquefied gasket 5 fill up with this operation gestalt into this slot, and the same effect as the gestalt 6 of the above-mentioned implementation does so.

[0019] gestalt 8. drawing 15 of operation shows the gestalt 8 of implementation of this invention -- a part -- the side elevation of a notch -- it is -- the structure of the gestalt 1 of the above-mentioned implementation -- in addition, it is the structure which formed the washer 6 which becomes by the foamed rubber, rubber, or the viscoelasticity material of an elastomer between an anchoring bolt 3 and a motor yoke 1, and the improvement in the vibrationproofing effect which attaches from a motor yoke 1 and reduces oscillating transfer to a bracket 2 through a

[0020] It is the side elevation of a notch in part, and gestalt 9. drawing 16 of operation is the structure equipped with O ring 7 which shows the gestalt 9 of operation and with which this operation gestalt used rubber or elastomer material for motor yoke anchoring inlaw section 2e of a bracket 2 in addition to the structure of the above-mentioned operation gestalt 1. By carrying out like this, improvement in the vibrationproofing effect which reduces the oscillating transfer to the motor yoke anchoring inlaw of a bracket 2 from the motor yoke 1 is aimed at. In addition, the oscillating reduction effect improves more by using together and combining the structure of the gestalten 8 and 9 of the above-mentioned implementation with the structure of the above-mentioned operation gestalt 1.

[0021] Gestalt 10. drawing 17 of operation uses the motor yoke anchoring bolt 8 in which the gestalt 10 of implementation of this invention is shown and with which it is the side elevation of a notch in part, and this operation gestalt applied the resin material 9 of locking to the screw section as a motor yoke anchoring bolt in the structure of the above-mentioned operation gestalten 1 and 8. By doing in this way, the slack of the anchoring bolt in the case of using it in the sheet 4 placed between the motor yoke 1 and a bracket 2 and the environment where degradation and contraction of the washer 6 by which attaches with a motor yoke and it is placed between bolts may take place can be prevented. In addition, although drawing 17 illustrated about the case of the gestalt 1 of operation as an example of representation, the same is said of the case of the gestalt 8 of operation.

[0022] Gestalt 11. drawing 18 of operation is the cross section showing the gestalt 11 of implementation of this invention. this operation gestalt In the structure of the above-mentioned operation gestalten 1 and 8, as a sheet 4 and a washer 6, as shown in this drawing (a) It considers as the sheet and washer 13 which were fabricated or stuck on the metal plate 10 (for example, aluminum) at both sides, using the sheet and washer 12 which fabricated or stuck a foamed rubber, rubber, or the viscoelasticity material 11 of an elastomer on one side as shown in (b). If it does in this way, improvement in attachment nature can be aimed at with improvement in the damping effect and the vibrationproofing effect.

[0023] Gestalt 12. drawing 19 of operation is the cross section showing the gestalt 12 of implementation of this invention, and this operation gestalt can increase the damping effect and the vibrationproofing effect further by setting in the structure of the above-mentioned operation gestalten 1 and 8, using a metal plate 10 (for example, aluminum), a foamed rubber, rubber, or the viscoelasticity material 11 of an elastomer as the sheet and the washer 14 fabricated or stuck on multilayer structure as a sheet 4 and a washer 6, and carrying out like this.

[0024]

[Effect of the Invention] Since it attaches in the state made the sheet a sheet becomes by the foamed rubber, the rubber, or the elastomer an elastomer is viscoelasticity material throughout the flange face of a motor yoke, and the anchoring side of this and the bracket a bracket counters intervene and it made have concluded with a bolt according to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 1 of this invention, the damping effect reduce vibration of a motor yoke itself, and the vibrationproofing effect reduce the oscillating transfer from a motor yoke to a bracket do

[0025] Since according to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 2 of this invention a level difference from which it becomes metallic contact near the bolting attachment bearing surface mutually at least was prepared in the anchoring side of a motor yoke or a bracket and the sheet was made to be placed between other parts, even when it is used in the environment where degradation and contraction of a sheet take place, the slack of an anchoring bolt can be prevented.

[0026] Since according to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 3 of this invention a slot where it becomes metallic contact near the bolting attachment bearing surface at least was established in the anchoring side of a motor yoke or a bracket and the liquefied gasket which is viscoelasticity material

was made to be placed between these slots, while being able to attach similarly [the above] and being able to prevent the slack of a bolt, reduction of cost can be aimed at by adopting a liquefied gasket.

[0027] According to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 4 of this invention, since the washer of viscoelasticity material was formed between the motor yoke anchoring bolt and the motor yoke, it has the vibrationproofing effect of attaching from a motor yoke and reducing oscillating transfer to a bracket through a bolt.

[0028] According to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 5 of this invention, since the motor yoke attachment inlaw section of a bracket was equipped with the O ring, it has the vibrationproofing effect of reducing the oscillating transfer to the motor yoke attachment inlaw of a bracket from a motor yoke.

[0029] According to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 6 of this invention, since the resin material for locking was given to the screw section of a motor yoke anchoring bolt, the slack of the anchoring bolt in the case of using it in the environment where degradation and contraction of a sheet and a washer may take place can be prevented.

[0030] Since what stuck viscoelasticity material on both sides or one side of a metal plate was used as a sheet and a washer according to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 7 of this invention, while being able to heighten the damping effect and the vibrationproofing effect, improvement in attachment nature can be aimed at.

[0031] Since the thing of the multilayer structure which stuck a metal plate and viscoelasticity material several times over was used as a sheet and a washer according to the oscillating reduction equipment of the rotation electrical machinery concerning the claim 8 of this invention, it contributes to increase of the damping effect and the vibrationproofing effect further.

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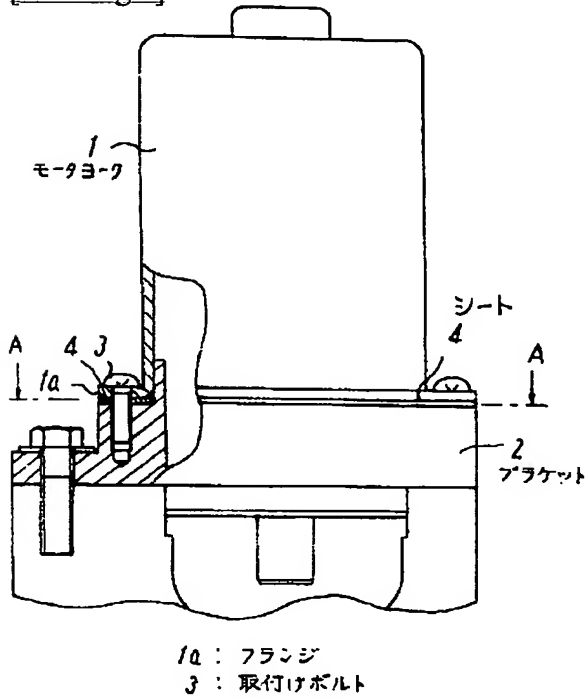
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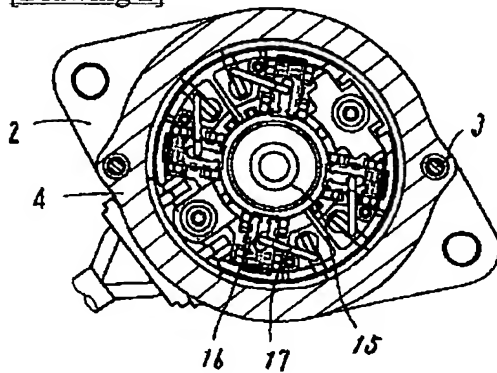
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DRAWINGS

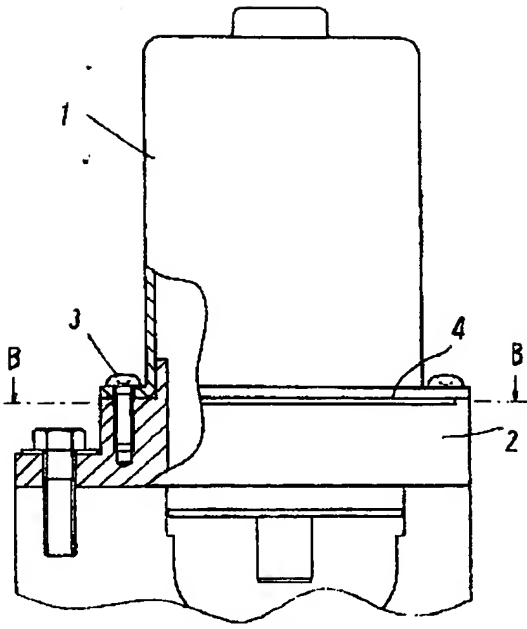
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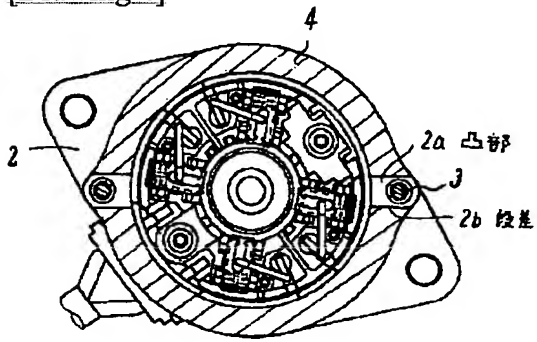
[Drawing 2]



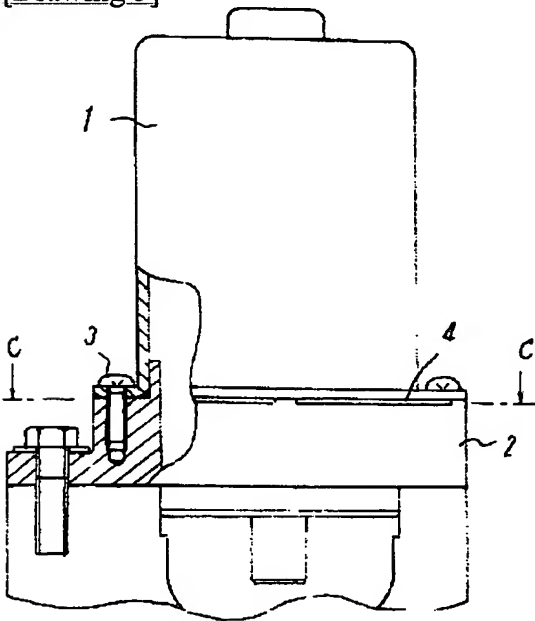
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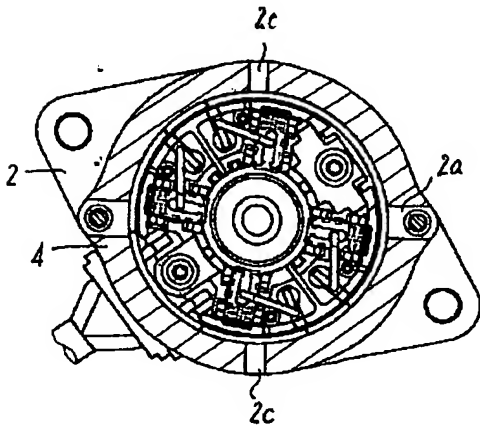
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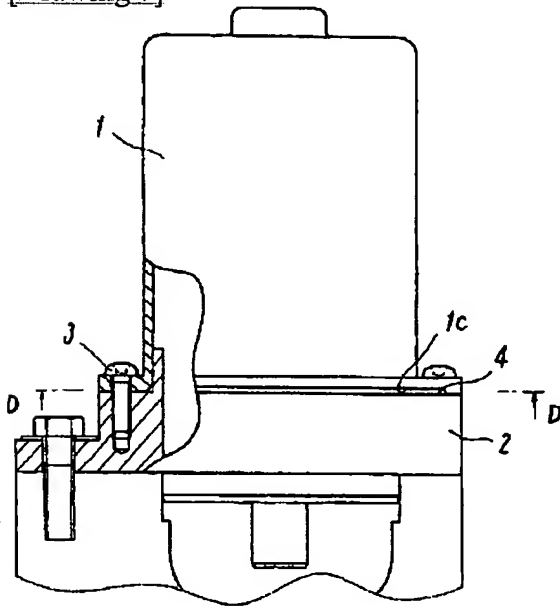
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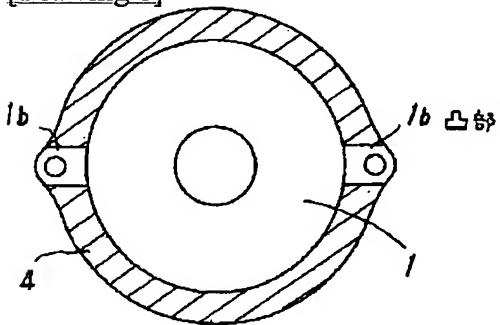
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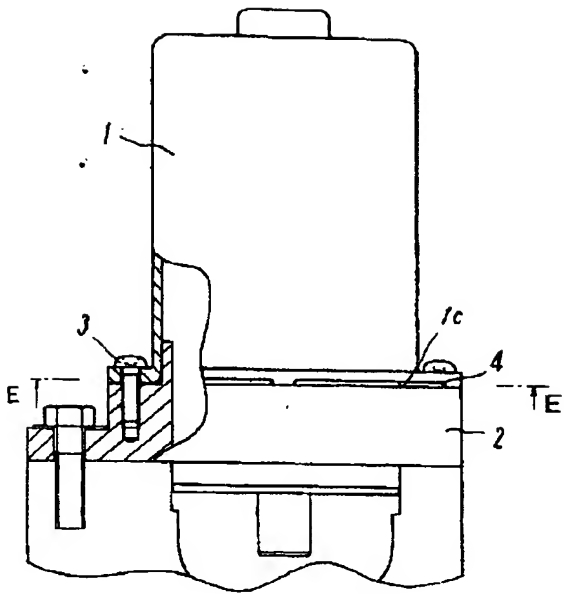
[Drawing 7]



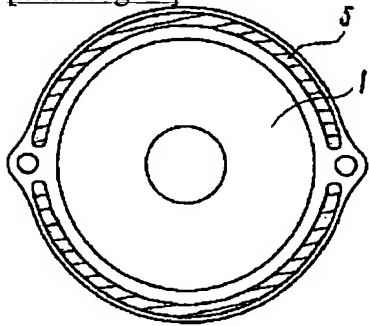
[Drawing 8]



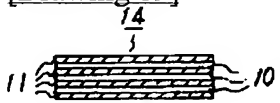
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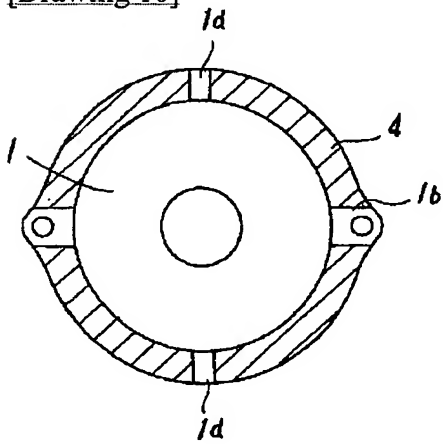
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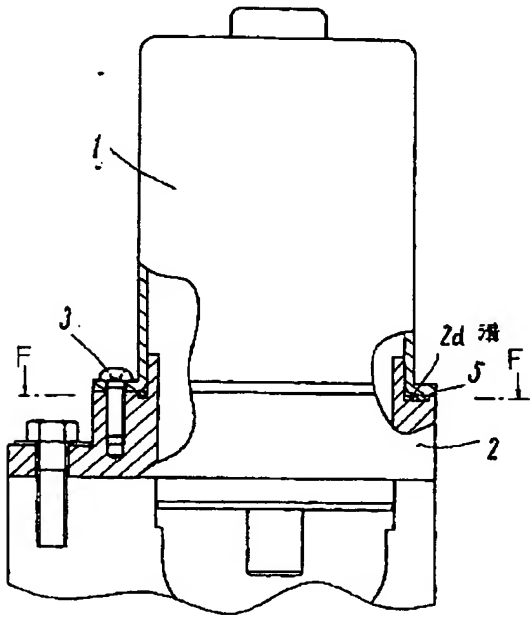
[Drawing 19]



[Drawing 10]

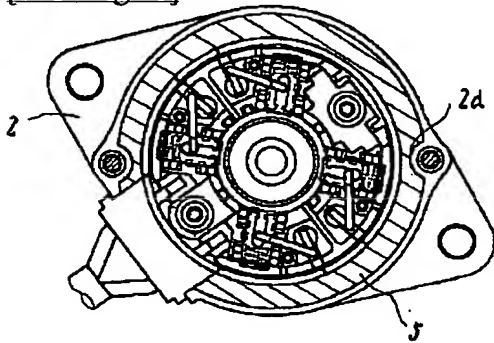


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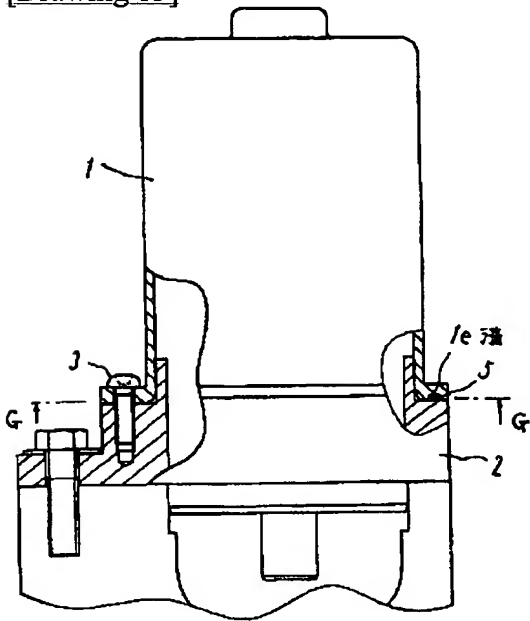


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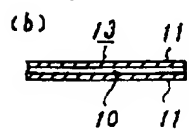
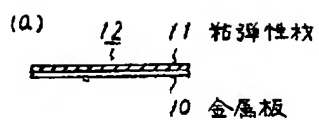
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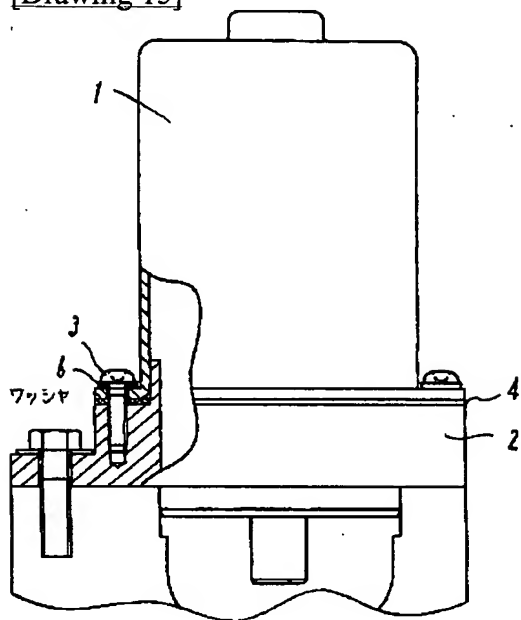
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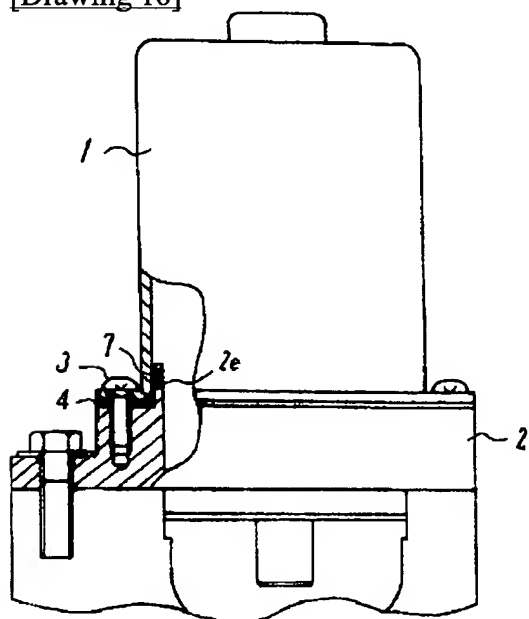
[Drawing 18]



[Drawing 15]

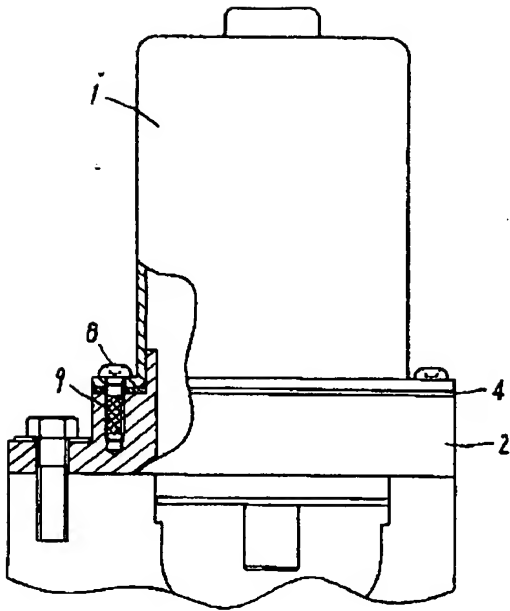


[Drawing 16]



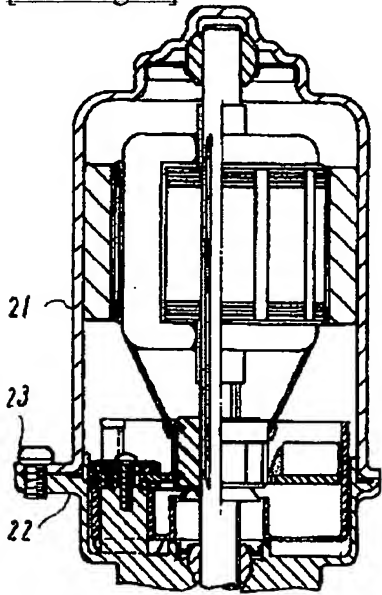
2e : インロー部
7 : Oリング

[Drawing 17]



8 : 取付けボルト
9 : 樹脂核

[Drawing 20]



[Translation done.]